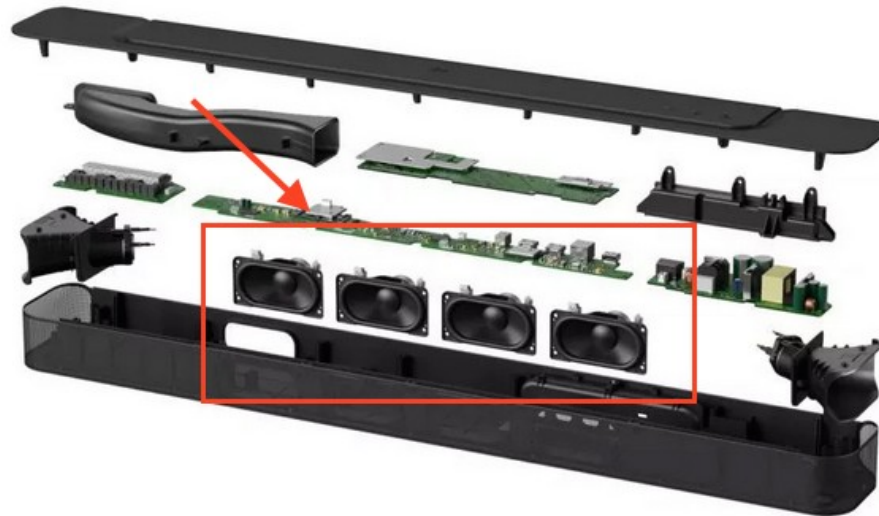


Exhibit 3.4

JBL – Soundbar (See Accused Product List at end of chart for soundbar models)	
Infringement of the '430 patent	
Claim #2	Evidence
2. A speaker system for producing localized regions of sound comprising:	<p>The JBL soundbar is a speaker system for producing localized regions of sound.</p> <p>For example, the soundbar produces a surround sound effect. The surround sound effect causes a listener facing the soundbar to perceive that sound emanating from the soundbar is originating at a location behind and to the left of the listener, referred to as surround left, and at another location behind and to the right of the listener, referred to as surround right.</p> <p><u>The Bar 300 is a sound bar that aims to provide an all-in-one solution, without the need for a subwoofer, for people who don't want to bother with a more extensive and often more expensive system. It has six speakers in a 5.0 configuration, and uses JBL and Harman/Kardon's own Multibeam surround/3D virtualisation technology to reproduce multi-channel streams, including Dolby Atmos.</u></p> <p>[11]</p>
a multiplicity of audio frequency speakers;	<p>The JBL soundbar includes a multiplicity of audio frequency speakers.</p> <p>For example, the BAR 300 soundbar includes four audio speakers positioned along a front face of the soundbar.</p>

What we do know is that there are four 46 x 90 mm racetrack drivers looking forward and two 0.75" (20mm) tweeters pushing the audio sideways. From the above our conclusion is that the two middle racetrack drivers are dedicated to the center channel, the two outer racetrack ones for the right and left channels while the tweeters work on the last two ones.



[8]

at least one defined sound target spaced from each of the speakers of the multiplicity of speakers, wherein each speaker has a means for applying a time varying audio drive voltage which is substantially identical, except that each audio drive voltage is offset in time by an amount which is related to the distance between each speaker and the defined sound target, so that substantially identical sound from each speaker

The JBL soundbar has at least one defined sound target spaced from each of the speakers of the multiplicity of speakers. Each speaker has a means for applying a time varying audio drive voltage which is substantially identical, except that each audio drive voltage is offset in time by an amount which is related to the distance between each speaker and the defined sound target. So that substantially identical sound from each speaker reaches the sound target at the same time.

For example, each of the speakers is connected to an audio amplifier. A surround left channel signal is provided to each speaker via the speaker's respective amplifier. The surround left channel is

reaches the sound target at the same time;

delayed slightly for speakers on the listener's left compared to speakers on the listener's right. The amount of delay is such that sound waves emanating from each of the speakers reaches the surround left location at the same time, thereby interfering constructively to produce a resultant sound wave having a peak spatial amplitude at the surround left location. When this wave reflects back to the listener, the listener perceives that the sound originated from the surround left location. [A]

With nine new models, surely JBL has something for everyone this year. The JBL Bar 300 is the most low tier one in the Bar series that uses the new numbering system for their models. There is also the Bar 2.0 All-in-One and Bar 2.1 Deep Bass, both of them in their updated MK2 versions, but we will talk about them some other time. On the other hand the Bar 300 seems to be very close to the previous [JBL Bar 5.0 MultiBeam](#). They share many features and specs so it will be interesting to see what changes JBL made this time.

So let's go real quick over the specs of the Bar 300. This is a 5.0 channels single soundbar with 260 watts of power output. It supports Dolby Atmos and MultiBeam surround sound and comes with certain extras including WiFi and Bluetooth functionality. In terms of extras we get an audio calibration system, Chromecast, Airplay, voice control capabilities and support for the JBL One app.

[8]

According to the specification the term: "substantially identical" means:

"It should be understood that when, a means for applying a time varying audio drive voltage, i.e. the signal used to drive individual speakers is described as substantially identical, the signals are defined as being substantially identical, although they vary in amplitude. The term, substantially identical, means capable of constructive interference when used in the sound system 36 of this invention." [col.12 lines 18-24]

<p>at least a first defined sound target and a second defined sound target, the second sound target being spaced from the first sound target, and the first sound target and the second sound target being spaced from each of the speakers of the multiplicity of speakers,</p>	<p>The JBL soundbar has at least a first defined sound target and a second defined sound target. The second sound target is spaced from the first sound target. The first sound target and the second sound target are spaced from each of the speakers.</p> <p>For example, the surround left location is at a rear position on a left-side wall of a nominally sized room e.g. 10 ft x 15 ft. The surround right location is at a rear position on the right-side wall of the room. Additionally, the soundbars calibrate for optimal performance depending on the dimensions of the room.</p> <p>This 3D sound skill isn't native, however, with six drivers facing front and side. JBL's MultiBeam signal processing is on hand to manage sound dispersion, <u>coupled with an auto-calibration routine to best fit the output to your listening environment</u>. This process is activated by a button on the bundled remote marked 'Calibration', whereas, on previous JBL soundbars, it was practically a hidden feature, involving a convoluted series of key presses. Finally, common sense has reigned, although some features (PureVoice tech for boosted dialogue clarity, and switching from Smart to Standard modes to kill surround processing) still require some finger-mashing on the zapper or use of the partnering JBL One app.</p> <p>[10]</p>
<p>and wherein the means for applying a time varying audio drive voltage comprises: at least a first audio source which is offset in time by an amount which is related to the distance between each speaker and the first defined sound target; and</p>	<p>The means for applying a time varying audio drive voltage comprises at least a first audio source which is offset in time by an amount which is related to the distance between each speaker and the first defined sound target.</p> <p>For example, a delay is added to the surround left channel (e.g. first audio source) before it is applied to a speaker on the left-side of the soundbar, as viewed from the listener's position. The delay relates to the distance between the speaker and the surround left location in the nominally sized room, whereby the speaker closest to the surround left location has the most delay. This enables the soundbar to produce audio with a wider soundstage. [A]</p>

	<p>This 3D sound skill isn't native, however, with six drivers facing front and side. <u>JBL's MultiBeam signal processing is on hand to manage sound dispersion</u>, coupled with an auto-calibration routine to best fit the output to your listening environment. This process is activated by a button on the bundled remote marked 'Calibration', whereas, on previous JBL soundbars, it was practically a hidden feature, involving a convoluted series of key presses. Finally, common sense has reigned, although some features (PureVoice tech for boosted dialogue clarity, and switching from Smart to Standard modes to kill surround processing) still require some finger-mashing on the zapper or use of the partnering JBL One app.</p> <p>[10]</p>
<p>at least a second audio source which is offset in time by an amount which is related to the distance between each speaker and the second defined sound target wherein a sum of the first audio source which is offset in time and the second audio source which is offset in time is used to produce the time varying audio drive voltage so that substantially identical sound from the first audio source signal reaches the first sound target at the same time, and substantially identical sound from the second audio source signal reaches the second target at the same time.</p>	<p>The JBL soundbar includes at least a second audio source which is offset in time by an amount which is related to the distance between each speaker and the second defined sound target. The sum of the first audio source and the second audio source is used to produce the time varying audio drive voltage. Substantially identical sound from the first audio source signal reaches the first sound target at the same time, and substantially identical sound from the second audio source signal reaches the second target at the same time.</p> <p>For example, a delay is added to the surround right channel (e.g. second audio source) before it is applied to a speaker on the right-side of the soundbar. The delay relates to the distance between the speaker and the surround right location, whereby the speaker closest to the surround right location has the most delay. Each speaker is provided, via its amplifier, with a surround left channel signal and a surround right channel signal, each signal having a respective delay. The signals are added together before being input to the respective amplifier. Consequently, each speaker emits a sound wave comprising audio from the surround left channel and from the surround right channel, the audio from each channel having an appropriate amount of delay such that the surround left audio reaches the surround left location at the same time as the surround right audio reaches the surround right location. [A]</p>

	<div><h2>What We Like About The JBL Bar 300 Pro</h2><ul style="list-style-type: none">■ Theater-quality surround sound with the virtual Dolby Atmos®, and MultiBeam™ technology.■ A fairly okay punchy bass despite having no sub. It's pretty good for an apartment or gaming room.■ PureVoice dialogue enhancement technology for crisp and clear dialogue.■ Built-in Wi-Fi with AirPlay, Alexa Multi-Room Music and Chromecast built-in■ Connects with voice assistant-enabled speakers for convenient control.■ HDMI eARC with 4K Dolby Vision passthrough for uncompressed sound.■ Easy sound calibration for optimal sound no matter the room.■ JBL One App for easy control and personalization.</div> <div>[12]</div>
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Accused Product List

JBL BAR 1300X, JBL BAR 1000, JBL BAR 500, JBL BAR 300, JBL BAR 9.1 JBL BAR 2.0, JBL BAR 2.

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